SLM SiteLync™

Network Modem

User Guide # S2-60898-100

Radio Frequency Emissions and Immunity

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Limits specified in the standards listed below are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

UNITED STATES: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.

CANADA: *This Class A digital apparatus complies with Canadian ICES-003.*

Cet appareil numérique de la classe A est conforme a la norme NMB-003 du Canada.

EUROPE: This equipment has been tested and found to conform with the following standards: EN60950, EN55022, and EN55024.

FCC Notices:

1. The Federal Communications Commission (FCC) has established Rules which permit this device to be directly connected to the telephone network. Standardized jacks are used for these connections. This equipment should not be used on party lines or coin lines.
2. If this device is malfunctioning, it may also be causing harm to the telephone network; this device should be disconnected until the source of the problem can be determined and until repair has been made. If this is not done, the telephone company may temporarily disconnect service.
3. The telephone company may make changes in its technical operations and procedures; if such changes affect the compatibility or use of this device, the telephone company is required to give adequate notice of the changes. You will be advised of your right to file a complaint with the FCC.
4. If the telephone company requests information on what equipment is connected to their lines, inform them of:
   a. The telephone number this unit is connected to
   b. The ringer equivalence number
   c. The USOC jack required
   d. The FCC Registration Number

   Items 'b' and 'd' are indicated on the label.

   The Ringer Equivalence Number (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of the RENs of all devices on any one line should not exceed five (5.0). If too many devices are attached, they may not ring properly.

CAUTIONS:

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wiring or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

TABLE OF CONTENTS

Standard Limited Hardware Warranty

LIMITED WARRANTY. Equipment manufactured by CTI Products, Inc. is warranted to be free from defects in material and workmanship for a period of ONE (1) YEAR from date of shipment to original purchaser. Under this warranty, our obligation is limited to repairing or replacing any equipment proved to be defective by our inspection within one year of sale to the original purchaser. This warranty shall not apply to equipment which has been repaired outside our plant in any way, so as to, in the judgment of CTI Products, Inc. affect its stability or reliability, nor which has been operated in a manner exceeding its specifications, nor which has been altered, defaced, or damaged by lightning.

CUSTOMER REMEDIES. In the event of a defect, malfunction, or failure to conform to specifications established by the seller during the period shown, the customer shall call CTI Products, Inc. to obtain a Return Authorization Number and return the product or module, shipping and insurance prepaid. CTI Products, Inc., will then at its option, either repair or replace the product or module and return it, shipping prepaid, or refund the purchase price thereof. On-site labor at the purchaser's location is not included in this warranty.

EQUIPMENT NOT MANUFACTURED BY CTI Products, Inc. Equipment not manufactured by CTI Products, Inc. is excluded from this warranty, but is subject to the warranty provided by its manufacturer, a copy of which will be supplied to you upon specific written request.

NO OTHER WARRANTIES. The foregoing constitutes the sole and exclusive remedy of the buyer and exclusive liability of CTI Products, Inc., AND IS IN LIEU OF ANY AND ALL OTHER WARRANTIES EXPRESSED OR IMPLIED OR STATUTORY AS TO MERCHANTABILITY, FITNESS FOR PURPOSE SOLD, DESCRIPTION, QUALITY, PRODUCTIVENESS OR ANY OTHER MATTER.

NO LIABILITY FOR CONSEQUENTIAL DAMAGES. WITHOUT LIMITING THE FOREGOING, IN NO EVENT SHALL CTI PRODUCTS, INC. OR ITS SUPPLIERS BE LIABLE FOR ANY DAMAGES WHATSOEVER (INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, OR OTHER PECUNIARY LOSS) ARISING OUT OF THE USE OF OR INABILITY TO USE CTI PRODUCTS, INC. EQUIPMENT BY PURCHASER OR OTHER THIRD PARTY, WHETHER UNDER THEORY OF CONTRACT, TORT (INCLUDING NEGLIGENCE), INDEMNITY, PRODUCT LIABILITY OR OTHERWISE, EVEN IF CTI PRODUCTS, INC. HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR LOSSES. IN NO EVENT SHALL CTI PRODUCTS, INC.'S, LIABILITY EXCEED THE TOTAL AMOUNT PAID BY PURCHASER FOR THE EQUIPMENT GIVING RISE TO SUCH LIABILITY.

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INTRODUCTION

LONWORKS/TELECOM CONNECTIVITY DEVICE

The SLM SiteLync network modem is an integrated package consisting of a LonTalk adapter and Telco interface, allowing communications with distant LonWorks networks using telecommunications media. Its non-router based design provides maximum connectivity value at minimum levels of installation and operation cost. It can replace older solutions using multiple units that have non-standard mounting and power requirements.

LonTalk Adapter

The integral LonTalk Adapter provides Network Services Interface (NSI mode) or Network Interface functionality (MIP mode). It allows any host to implement the upper layers of the LonWorks protocol, so applications on the host can send and receive network variable updates and explicit messages, as well as poll network variables. The SLM SiteLync network modem must be ordered for use in either NSI mode or MIP mode. It is not easily field changeable since a factory configuration of the hardware determines the operating mode. It is available with either FTT-10A, TPT/XF-78, or TPT/XF-1250 LonWorks network transceiver.

Telco Interface

When ordered with one of the integral telephone service interfaces, the SLM SiteLync network modem provides the means to connect distant LonWorks networks using analog (PSTN), digital (ISDN), or cellular channels.

The internal analog modem options in the SLM SiteLync network modem use proven V.34 terbo modulation, transferring data at 33,600 bits per second. Dial-up as well as 2-wire leased lines (for North America only) are supported. The internal ISDN modem (for Europe only) can connect at 64 Kbps using the S/T interface. The internal cellular modem uses the AMPS protocol (for North America only) at data rates up to 4800 bps.

Power Supply

Internal power supply options are available for 10-35VAC/DC or 100-240VAC. This supplies all necessary power for the SLM unit.

Typical Applications

Figure 1 shows a typical monitor and control application with the SLM/IM SiteLync network modem being used to connect LonWorks networks to a remote host PC through analog dial-up lines.

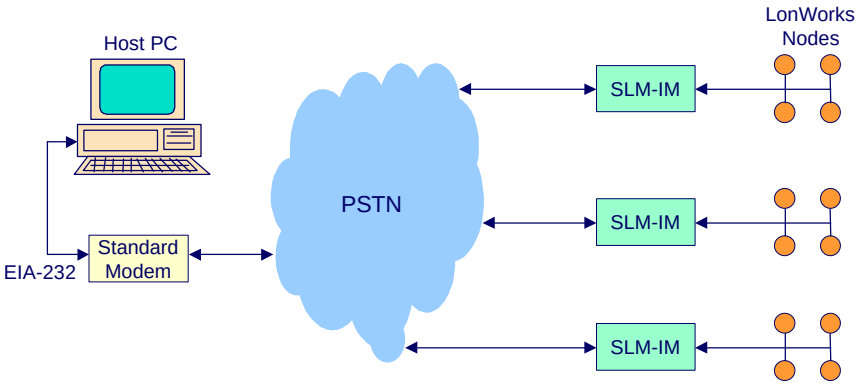


Figure 1. Typical Remote Monitor and Control Application using PSTN Lines

Typical applications include monitoring and control of LonWorks devices utilizing analog, ISDN, and Cell telephone services. By incorporating SLM SiteLync network modems into the network, applications can be implemented on a host that is located remotely from the LonWorks network.

Figure 2 shows the SLM/IS (ISDN) SiteLync being used to connect LonWorks networks to a remote host PC through ISDN lines.

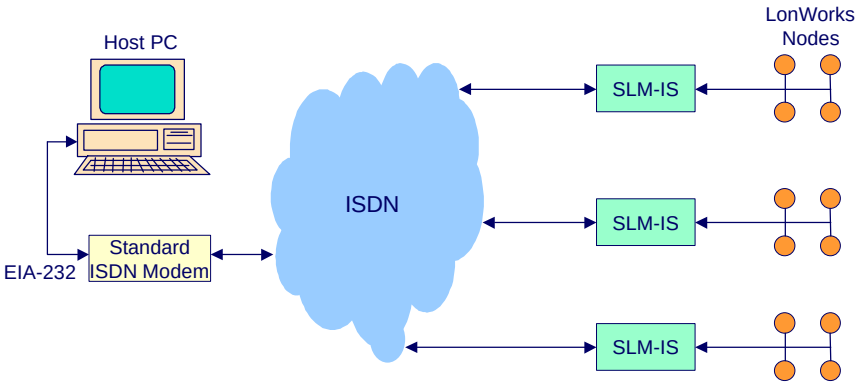


Figure 2. SLM/IS Connecting Networks using ISDN Lines

Figure 3 shows the SLM/CL SiteLync being used to connect a LonWorks network to a remote host PC through a cellular channel. An auxiliary connector is provided to allow a wired connection to the PSTN. This can be used as a backup channel when the wireless channel is not available.

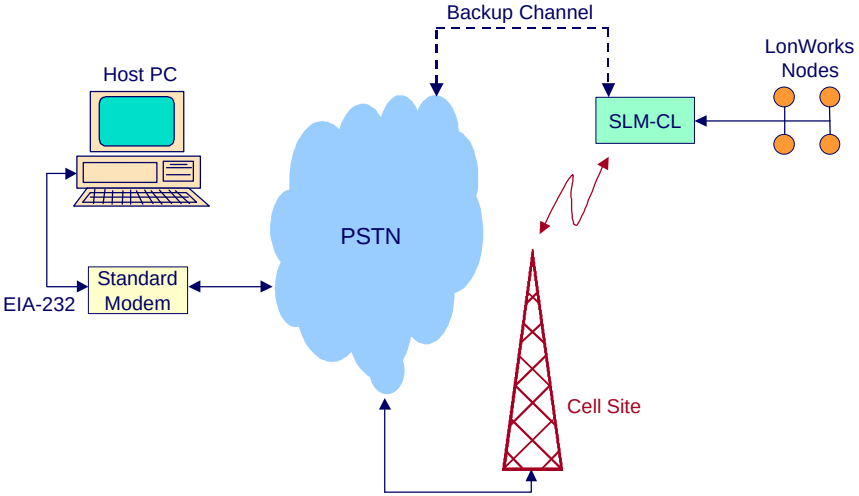


Figure 3. SLM/CL Connecting Networks using a Cellular Channel

Figure 4 shows the SLM/AY SiteLync being used to connect LonWorks networks to a remote host PC through T1 or E1 channels. This configuration may also be used with other high speed serial transmission media such as digital microwave.

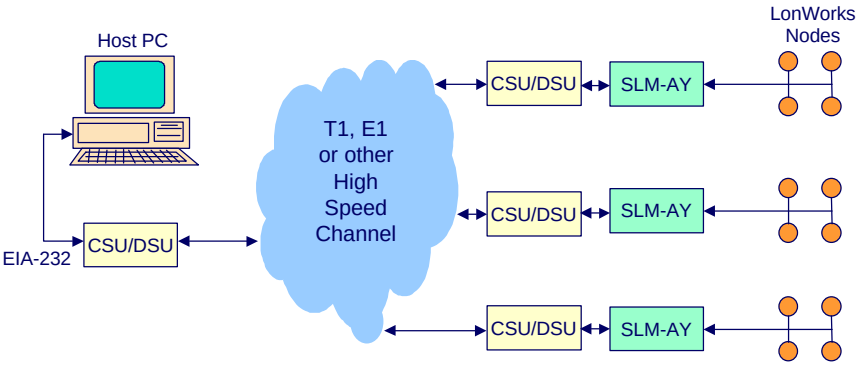


Figure 4. SLM/AY Connecting Networks using a High Speed Channels

The SLM/AY SiteLync can also operate as a serial (EIA-232) LonWorks Network Services Interface (NSI) or Network Interface (NI) as shown in Figure 5.

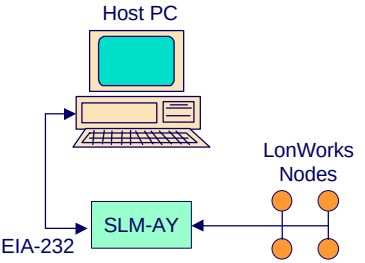


Figure 5. SLM/AY used as a LonWorks NSI or NI

FRONT PANEL

All operator controls and connectors are accessible from the front panel. Figure 6 shows the front panel of the SLM/IM model. Other models are similar in appearance.

The SLM/AY (no modem) does not contain the "RUN/CFG" switch, rather it has an 8 position OPTION DIP switch. See APPENDIX D for descriptions of these switch functions.

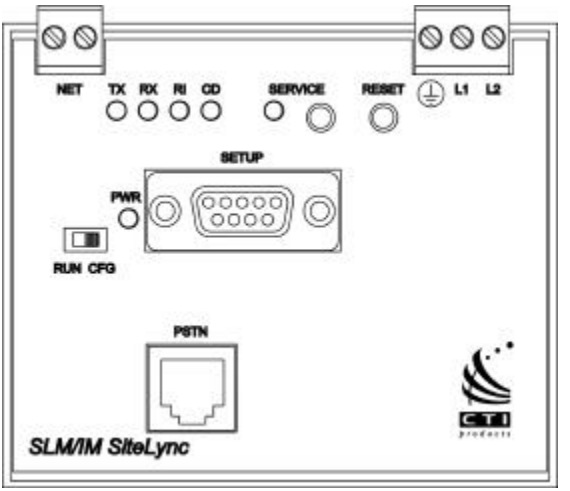


Figure 6. SLM/IM Network Modem Front Panel

CONNECTORS

NET	LonWorks network, polarity insensitive
L1, L2	Input power, DC is polarity insensitive
SETUP	EIA-232 port for configuration. In RUN mode, data from the modem is also transmitted on this port for diagnostic purposes.
HOST	EIA-232 HOST port for SLM/AY.
PSTN	Telephone line connection for SLM/IM and SLM/CL.
ISDN	S/T connection for SLM/IS.
CELL	Cell phone connection for SLM/CL

INDICATORS

TX	Indicates packet is transmitted from the LonTalk adapter.
RX	Indicates packet is received by the LonTalk adapter.
RI	Indicates incoming call is detected but not yet answered.
LNK	Indicates cable is connected to ISDN termination device(SLM/IS only).
B	Indicates a call has been established with another ISDN modem (SLM/IS only).
CD	SLM/IM: Indicates carrier is detected and training sequence / protocol negotiation completed. SLM/IS: Indicates a call has been established AND the B channel protocol negotiation has been completed.
SERVICE	ON : Power-up initialization in progress (approximately 6 seconds). Blinking : LonTalk adapter is unconfigured.
PWR	Indicates input power is present.

SWITCHES

SERVICE	Initiates Service pin message from LonTalk adapter.
RESET	Initializes SLM hardware, causes all switches to be read.
RUN/CFG	RUN: Connects modem to LonTalk Adapter. CFG: Connects LonTalk Adapter to SETUP port.
OPTION	Sets various options for SLM/AY only. See Appendix D for details.
AUX	(Internal switch located in front of the NET connector), normally left in the OFF (left, away from the PWR connector) position. In the ON (right, toward the PWR connector) position, the SETUP connector is internally connected to the modem for those rare cases when the modem must be accessed directly for diagnostic purposes.

SETUP AND OPERATION

STEP 1. INSTALLING THE SOFTWARE DRIVERS

Drivers must be installed on the Host PC to allow communications with an SLM SiteLync module. Even if these device drivers have previously been installed on the host PC for use with some other type of network interface, it is recommended that the following procedure be used to ensure the correct installation of the drivers and the SLM/Config utility. To install all necessary drivers and software, perform the following steps:

a. Close all open programs.

b. Insert the SLM SiteLync installation disk 1 into the PC.

c. Click the Start button on the Windows task bar and select the run command.

d. When prompted for a program name, enter the following:
A:\SETUP.EXE

e. Follow the prompts in the setup process. The following software will be installed:

- If NSI mode is selected, SLTALink Manager and a virtual DOS driver for the SLM/Config utility, or
- If MIP mode is selected, SLTA DOS device driver for MIP applications and the SLM/Config utility.
- SLM/Config utility (slm.exe) and associated .dll and .vbx files.

f. At the prompt to restart the PC, remove the SLM SiteLync installation disk and restart the computer.

g. To install drivers for both NSI and MIP modes, simply run the installation program twice.

STEP 2. MOUNTING THE SLM SITELYNC

The SLM SiteLync network modem must be mounted using a standard DIN rail per EN50022 inside an approved fire enclosure as defined in UL1950. The length of DIN rail channel required to properly mount the SLM is 3.5 inches.

There are no user-serviceable components inside the SLM unit and it should not be disassembled. Should the unit require repair, it must be returned to CTI Products, Inc.

STEP 3. MAKING ELECTRICAL CONNECTIONS

LonWorks Network Connection (NET)

Connect the LonWorks twisted pair channel to the SLM module via the 2 terminal NET connector. This connection is non-polarity sensitive.

Telephone Line Connection (PSTN, ISDN, or CELL)

Connect the telephone service line to the PSTN (for SLM/IM), ISDN (for SLM/IS), or CELL (for SLM/CL) connector. An RJ11 is provided on the SLM/IM and SLM/CL models. An RJ45 is provided on the SLM/IS model.

Input Power Connection

Power input is applied to the SLM module via the 3 terminal connector. The terminals labeled 'L1' and 'L2' are used for the mains input. SLM units with power input rating of 10-35 volts AC/DC are polarity insensitive. The terminal marked with the ground symbol should be connected to protective earth ground. For SLM units with power input rating of 100-240 VAC that are permanently connected, a readily accessible disconnect device must be incorporated in the fixed wiring. For those connected with a pluggable device, the socket-outlet must be installed near the SLM and must be easily accessible.

Apply power to the SLM SiteLync network modem only after all other connections have been made.

After power is applied, the **PWR** indicator should come on. Also, the **SERVICE** indicator should come on for approximately 6 seconds. After the **SERVICE** indicator goes off, the SLM is ready for use.

STEP 4. CONFIGURING THE SLM SITELYNC

Most typical applications (where a host computer is used to dial into multiple remote sites containing SLM/IM, SLM/IS, or SLM/CL modules) can make use of the factory default configuration of the SLM SiteLync (as follows):

- All models : ***RUN*** mode
- All models : Auto-answer ***enabled***
- All models : Auto-Dial-Out mode : ***disabled***
- SLM/IM (EU) : Country code = ***Europe***
- SLM/IS (EU) : D channel protocol = ***Euro-ISDN (DSS1)***
  B channel protocol = ***X.75***

User configuration of SLM SiteLync network modems will only be needed in the following situations :

- An SLM/IM used in Europe, where the default country code of "Europe" does not function properly (see "Modem Options" in APPENDIX C).
- An SLM/IS requiring other than the Euro-ISDN (DSS1) D channel protocol and the X.75 B channel protocol (see "Modem Options" in APPENDIX C).
- An SLM/IM, SLM/IS, or SLM/CL that will make use of the Auto-Dial-Out function (see Auto-Dial-Out configuration in Appendix C).
- SLM/AY units needing switch settings other than factory default (See APPENDIX D).

Will Configuration be Required?

☒ If NO, and the SLM will be used with its factory default settings, skip to **STEP 5**. The SLM is ready to function in a network.

☑ If YES, see APPENDIX D for the SLM/AY, or **User Configuration of the SLM SiteLync** (below) for all other models.

To learn more about Auto-Dial-Out Mode, Country Codes, and ISDN protocols, see APPENDIX C.

User Configuration of the SLM SiteLync

Note: Be sure to shut down any host application (i.e. LonMaker, Nodeutil, etc.) before attempting to run the SLM/Config utility.

If configuration of the SLM SiteLync is necessary, follow these steps:

a. Connect a standard (straight-through) serial cable from the proper serial port on the PC containing the software installed in Step 1 to the SETUP connector on the SLM SiteLync network modem. See APPENDIX E for connection details.

b. Set the RUN/CFG switch to the CFG (CONFIGURE) position.

c. Connect power to the SLM SiteLync network modem, or press RESET if the unit is already powered.

d. If using the SLM SiteLync in MIP mode, skip to Step e. If using the SLM SiteLync in NSI mode, use SLTALink Manager to establish a "Local Link" with the SLM SiteLync module. Characteristics such as host PC

in APPENDIX A.

Information in APPENDIX A for remote links applies to the most common usage of the SLM SiteLync where the PC “dials-in to” remote SLM SiteLync sites. For information on the more advanced usage where the SLM SiteLync in NSI mode automatically dials-in to the PC, please refer to Technical Note TN031.

APPENDIX

APPENDIX A. SLTALINK MANAGER AND NSI MODE

Host Applications using the LNS platform (such as LonMaker for Windows and Windows DDE Server) require the SLM SiteLync to be used in NSI mode, along with the SLTALink Manager. The SLTALink Manager provides a Windows 32-bit driver and a user interface for controlling the connection through an SLM SiteLync network modem in NSI mode and for diagnosing connection problems. It can monitor a modem line, answer an incoming call, associate the incoming call's SLM SiteLync (and hence its network) with a LonTalk node, and then launch a pre-determined application for that particular network or SLM SiteLync. Parameters such as local/remote connection, dialing preferences (area code, access number, tone/pulse dialing, calling card dialing), monitoring for dial-in, and link associations (to an application during dial-in) can be altered. The SLTALink Manager enables a LonWorks network to establish a connection to a host PC based on an event that occurs in the remote network (such as an alarm condition). Refer to Technical Note TN031 to learn more about these advanced SLM SiteLync and SLTALink Manager features.

DOS and 16-bit Windows LonManager API applications (such as Lonmaker for DOS and Nodeutil) can make use of the SLM SiteLync in NSI mode via the SLTALink Manager driver through the ldvvdd.sys (Windows 9x) or pcltdos.sys (Windows NT) virtual device drivers. If the ***NSI mode*** driver installation was performed as described in **STEP 1** of the "SETUP AND OPERATION" section, the driver was loaded onto the host PC, and a device driver line was added to the config.sys file similar to one of the following:

Windows 9x (config.sys file)

```
device=c:\progra~1\ctipro~1\slm\ldvvdd.sys /D1 /V"LonSLTA"
```

Windows NT (config.nt file)

```
device = %systemroot%\system32\pcltdos.sys /D1
```

Figure 7 shows a typical host PC configuration when using SLTALink Manager in an LNS application. The host PC configuration would be the same if connected to a local SLTA SiteLync used as a Network Services Interface in NSI mode.

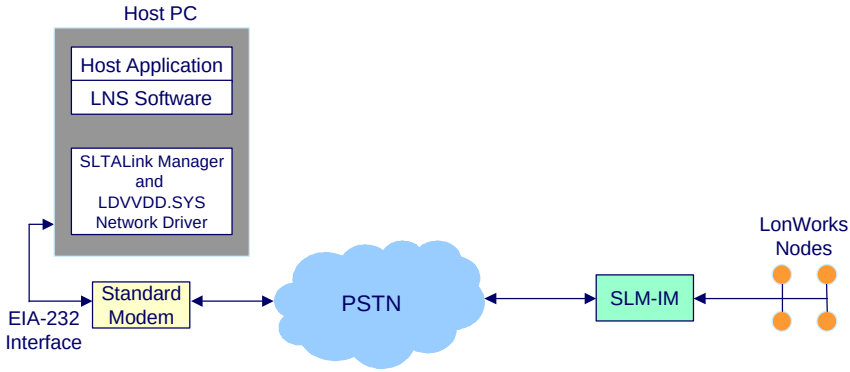


Figure 7. NSI Mode with Host PC using SLTALink Manager

Establishing a New Local Link

Use this procedure when the SLM SiteLync SETUP OR HOST port is connected directly to the PC COM port via an RS232 cable. For the SLM/AY, be sure that OPTION switch position 2 is in the UP position. For all other models, be sure that the RUN/CFG switch is in the CFG position. Following any change to switch settings, be sure to power cycle or RESET the SLM SiteLync.

To establish a new local link with an SLM SiteLync using SLTALink Manager, use the following steps:

a. From the **Link** menu, choose **New.**

b. In the "Link Description" window, specify a Name, click the Local button, then click the Next button.

c. In the "Comm Port" window, specify the serial port to which the SLM SiteLync will be connected, select a baud rate of 57600, then click the Next button.

d. In the "Link Properties" window, accept the default field values by clicking the Finish button.

e. From the **Link** menu, choose **Select** and select the link just configured from the list .

f. Manually connect to the local SLM by clicking the "Link" button shown here.  Connection status will be indicated in the main window. If successful, the "Remote Identifier" will be shown.

Establishing a New Remote Link

Use this procedure when using an internal or external modem on the PC to dial in to a remote SLM SiteLync. For the SLM/AY, be sure that OPTION switch position 2 is in the DOWN position. For all other models, be sure that the RUN/CFG switch is in the RUN position. Following any change to switch settings, be sure to power cycle or RESET the SLM SiteLync.

The modem connected to the host PC must first be installed using Modems function in the Windows Control Panel. Be sure the "Modem Maximum Speed" parameter in the "Standard Modem Properties" window is set to 57600 baud.

Once the PC modem is installed to Windows, establish a new remote link with an SLM SiteLync using SLTALink Manager by using the following steps:

a. From the **Line** menu, choose **Dialing Preferences**. Click the Dialing Properties button to bring up the "Dialing Properties window. Ensure that information is correct for the location of the host PC.

b. From the **Link** menu, choose **New**.

c. In the "Link Description" window, specify a Name, click the Remote button, then click the Next button.

d. In the "Dialing Address" window, specify the phone number ("Phone -window) and select the modem to be used ("Connect Using" sub-window).

e. If additional modem setup commands are needed for the modem attached to the host PC (such as a command to set the B Channel protocol of an ISDN modem to match the protocol selected for the SLM SiteLync), they can be entered as follows :

- In the "Connect Using" window, click the Configure Line button to access modem parameters.
- From the **Connection** tab, click the Advanced… button, then enter required command string (starting with 'AT') in the "Extra x.
- Click the OK button to accept the new advanced settings.
- Click the OK button to return to the Dialing Address window.

f. Click the Next button

g. In the "Link Properties" window, accept the default parameters by clicking the Finish button.

h. From the **Link** menu, choose **Select** and select the link just configured from the list.

i. Manually connect to the remote SLM by clicking the "Link" button shown here.  Connection status will be indicated in the main window. If successful, the "Remote Identifier" will be shown.

APPENDIX B. MIP MODE USING THE DOS DRIVER

LDVSLTA.SYS is the driver used for non-LNS applications running on a DOS or Windows 9x platform involving the SLM SiteLync network modem in MIP mode. ***This driver will not function on Windows NT.*** If the ***MIP mode*** driver installation was performed as described in **STEP 1** of the "SETUP AND OPERATION" section, the MIP mode driver (ldvslta.sys) was loaded onto the host PC. In addition, a device driver was added to config.sys similar to the following:

```
device=c:\progra~1\ctipro~1\slm\ldvslta.sys /B57600 /P1
/D1
```

Figure 8 shows the host PC configuration when MIP mode is used.

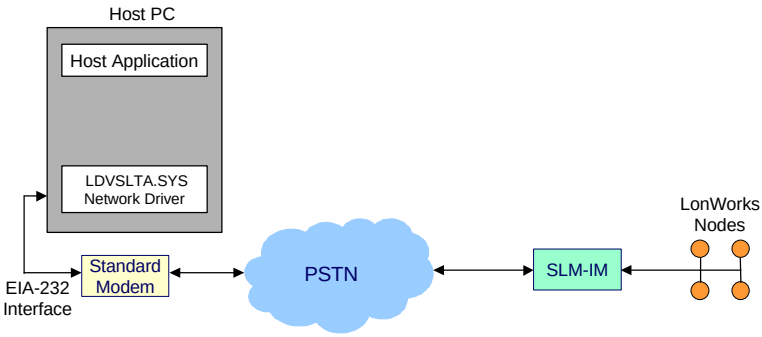


Figure 8. MIP Mode with Host PC using LDVSLTA.SYS Device Driver

No configuration of the ldvslta.sys driver is required or supported.

The SLM SiteLync in MIP mode can be connected to the PC either locally via an RS232 cable, or remotely via a modem at the PC. Set the SLM SiteLync switches as follows, depending on the choice of local or remote connection:

SLM Model	*Local / Remote*	*Switch Setting*
SLM/AY	Local	OPTION 2 : **UP**
SLM/AY	Remote	OPTION 2 : **DOWN**
All Others	Local	RUN/CFG : **CFG**
All Others	Remote	RUN/CFG : **RUN**

Following any change to switch settings, be sure to power cycle or RESET the SLM SiteLync.

Dialing from the PC to a remote SLM SiteLync can be performed using the DOS program HCU.EXE (installed in Step 1 of the Setup and Operation section) by

typing : HCU [-DLONn] ATDTddddddd!<CR>, where n is the LON device number and dddddd is the number to be dialed, followed by an exclamation point.

APPENDIX C. SLM/CONFIG UTILITY

The SLM/Config utility (slm.exe) is a tool to customize the SLM SiteLync module for an application. Characteristics such as modem properties (ie, county code, auto-dial mode, dial directories), security callback, hang-up timer, and auto-dial-out can be specified. The SLM/Config utility is very similar to the **Configure SLTA** selection in the **Devices** menu of SLTALink Manager. Although either program may be used to configure the SLM SiteLync (in NSI mode), the SLM/Config utility eases the task of determining the modem initialization string, allows the configuration choices to be saved to and retrieved from a disk file, and can be used with the SLM SiteLync in either NSI or MIP mode.

The software driver installation procedure (described in Step 1 of the "Setup and Operation" section) will place the SLM/Config utility (slm.exe) in the following directory unless otherwise specified:

```
C:\Program Files\CTI Products Inc\SLM
```

If using the SLM SiteLync in NSI mode (local or remote), the link to the SLM must already be established using SLTA Link Manager before proceeding, see Appendix A.

Any LonWorks host application (LNS, DOS, or Windows) using the SLM SiteLync to be configured must be shut down before proceeding. Only one application using a particular SLM SiteLync (including SLM/Config) may be running at any one time.

Start the SLM/Config utility by double clicking the file name (slm.exe) in Windows Explorer. The following startup window will be displayed.

Selecting the LON Channel

From the **LON Device** menu, select the LON channel assigned to the SLM SiteLync being configured. Up to two LON channels will appear, one for NSI mode and one for MIP mode, based on channels selected during installation.

Configuration Using an Existing File

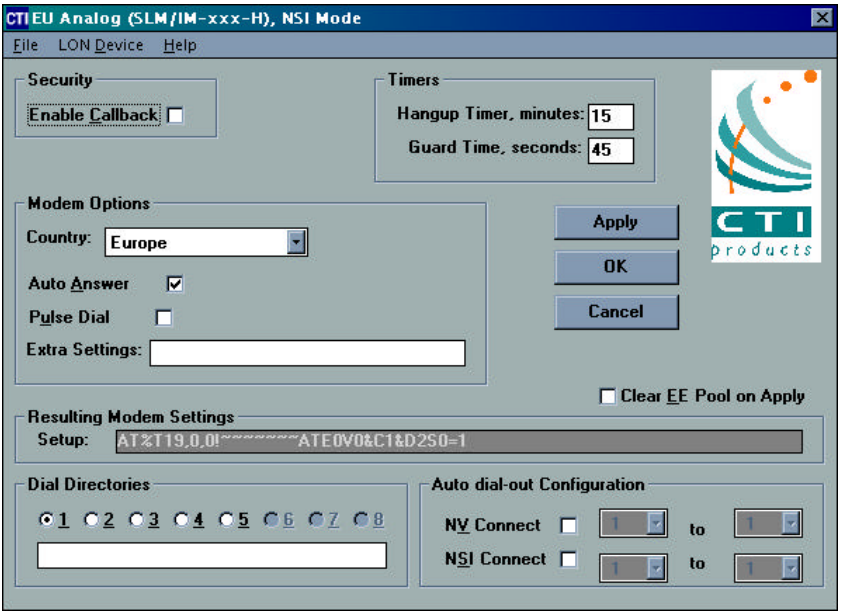
To configure an SLM SiteLync using an existing file that was previously saved from the SLM/Config utility, select from the **File** menu : **Open File**, and select the file to open. The Modem Setup window will be displayed and parameters may be viewed or altered. Click on the Apply button to download the parameters to a connected SLM SiteLync network modem.

Retrieving Configuration from an Existing SLM SiteLync

Parameters may be uploaded from a previously configured SLM SiteLync network modem using the **Upload From Connected SLM** item of the **File** menu. This feature is available only in NSI mode. Once uploaded, they may be downloaded to additional SLM SiteLync units or modified and resent back to the same unit, as described below.

Configuration for a New Application

To configure an SLM SiteLync module for a new application, select **New File** from the **File** menu. Select the appropriate SLM SiteLync model, then select **NSI Mode** or **MIP Mode**. The Modem Setup window will be displayed as follows (for example, the European Union (EU) compatible analog modem, NSI mode) :



Specify the parameters for the following features based on system requirements. After all parameters have been correctly specified, click on the Apply button to download the parameters to the connected SLM SiteLync network modem.

Parameters may also be saved to a file using the **Save File As** item of the **File** menu.

Modem Options

Country (EU Analog Only)

European Union compatible modems allow a specification to enable country specific line requirements. Test the SLM SiteLync first using the "Europe" selection. If the connection is not satisfactory, select the actual country of location from the drop-down list. Europe is the default selection.

Auto Answer

If the SLM Network Modem must automatically answer incoming calls, select "Auto Answer". Auto Answer enabled is the default state.

Answer/Originate Mode (Analog Leased Lines Only)

In leased line operation, it is suggested that the SLM SiteLync network modem operate in Answer Mode. Answer Mode is the default state. The modem at the host PC should be placed in Originate Mode.

Pulse Dial (Analog Dial-Up Only)

If the SLM Network Modem must use pulse dialing (as opposed to the more common tone dialing), select "Pulse Dial". Pulse Dial disabled is the default state.

B Channel Protocol (ISDN Only)

The Bearer (B) Channel is used for transmitting data on the ISDN line. A variety of protocols are used to format the data on the B Channel. Specify the protocol to match the protocol used in the ISDN modem connected to the host PC to which the SLM SiteLync will communicate.

D Channel Protocol (ISDN Only)

The Delta (D) Channel is used for call supervision and control, and the activation/deactivation of ISDN features. A variety of protocols are used to format the data on the D Channel. Specify the protocol required by the ISDN line provider.

Extra Settings

In some cases, additional initialization commands are needed to configure the SLM Network Modem to customer specific requirements. When specified in this text box, these characters are appended to the dial string, and appear in the "Resulting Modem Settings" box. Normally, this box should be left blank.

Resulting Modem Settings

This read-only line shows the complete initialization string to be downloaded to the SLM SiteLync.

Security

If security callback is required, select "Enable Callback", select one of the five Dial Directories, and specify the dial string to be used when connecting to the host PC. **This feature is not available in MIP mode.**

Timers

If the SLM SiteLync should control the termination of the connection, specify a non-zero value for the "Hangup Timer". The SLM SiteLync will hang-up and break a connection when the time specified has elapsed and no uplink or downlink activity has occurred. A value of zero will allow a connection to remain active indefinitely. The default setting is 15 minutes.

The "Guard Time" parameter controls how long the SLM will wait before attempting to dial the next number for the auto dial-out configuration. For more details on this advanced feature, see Technical Note TN031. The default setting is 45 seconds. **Guard Time is not available in MIP mode.**

Dial Directories

Up to five dial strings can be specified in NSI mode. Up to eight dial strings can be specified in MIP mode. These dial strings are used for the Security Callback and Auto Dial-Out features. For more details on this advanced feature, see Technical Note TN031.

Auto Dial-out Configuration

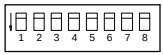
If the SLM SiteLync is required to dial the host PC when a network variable update occurs from a connected node (ie, due to an alarm condition), then select "NV Connect" and specify a range of dial directories to use. Multiple directories may be specified to allow a connection retry to another directory number if the first number was busy. Normally, only one directory will be used as shown in the following diagram.

For more details on this advanced feature, see Technical Note TN031.

This feature is not available in MIP mode.

APPENDIX D. OPTION SWITCH SETTINGS FOR SLM/AY

OPTION (SLM/AY only): Configuration of the SLM/AY is accomplished through the setting of these eight switches. The positions of these switches are read by the SLM firmware following a hardware reset caused by either a power cycle or the pressing of the RESET button.



	DOWN	UP	
1. CFG3	Buffered Link Protocol	ALERT/ACK Link Protocol	(default)
2. CFG2	Remote Host	Local Host	(default)
3. CFG1	Network Disabled after Reset	Network Enabled after Reset	(default)
4. CFG0	8 Wire Interface	3 Wire Interface	(default)
5. AutoBaud	Autobaud Enabled	Autobaud Disabled	(default)

6. Baud 2
7. Baud 1
8. Baud 0

Baud Rate →

Baud Rate	Switch:	6	7	8
115200		DN	DN	DN
57600	(default)	DN	DN	UP
38400		DN	UP	DN
19200		DN	UP	UP
9600		UP	DN	DN
2400		UP	DN	UP
1200		UP	UP	DN
14400		UP	UP	UP

Interface Link Protocol Control

Switch 1 / CFG3 controls the network interface link protocol used between the SLM/AY and a local host, when in MIP mode. The ALERT/ACK link protocol is designed for host computers that cannot accept asynchronously occurring streams of serial data at high speed (typical of DOS and Windows applications). This is the default state. The Buffered link protocol is designed for host computers that can accept and buffer back-to-back serial data without losing characters (typical of most real-time operating systems, such as UNIX).

Modem Support

Switch 2 / CFG2 controls the use of the SLM/AY with an external modem. If the SLM/AY is connected directly to a host, then this switch should be set to the *Local Host* state. This is the default position. If the SLM/AY is connected to a modem, then this switch should be set to the *Remote Host* state and CFG3 must be set to ALERT/ACK.

Network Disable

Switch 3 / CFG1 enables or disables network communications after reset. If network communications is disabled after a reset, the SLM/AY will not be able to communicate on the network until it receives an niFLUSH_CANCEL command from the host.

EIA-232 (SETUP) Interface

Switch 4 / CFG0 enables either a 3 wire (TxD, RxD, GND) or 8 wire (TxD, RxD, DCD, DTR, RTS, GND) interface for the EIA-232 SETUP connector. The default setting is *3 Wire Interface*.

Autobaud

Switch 5 enables or disables the automatic selection of baud rate by the SLM/AY. The recommended setting is *Disabled*, and should only be *Enabled* when a fixed baud setting is not appropriate and when the SLM/AY is connected to a local host. The Autobaud algorithm is performed after a power cycle or reset. The default setting is *Disabled*.

Baud Rate

Switches 6, 7, and 8 are used to set the serial bit rate. This setting is only used if Autobaud is disabled. All data are transmitted using 1 start bit, 8 data bits, no parity bits, and 1 stop bit.

APPENDIX E. EIA-232 (SETUP OR HOST) CONNECTIONS

Attaching the SLM SiteLync directly to a PC

Table 1. DB-9 to DB-9 Straight Through Cable

PC Signal Name	PC DB-9 Female		SLM DB-9 Male	SLM Signal Name
DCD	Pin 1		Pin 1	DCD
RxD	Pin 2		Pin 2	RxD
TxD	Pin 3		Pin 3	TxD
DTR	Pin 4		Pin 4	DTR
Signal Ground	Pin 5		Pin 5	Signal Ground
DSR	Pin 6		Pin 6	DSR
RTS	Pin 7		Pin 7	RTS
CTS	Pin 8		Pin 8	CTS

Attaching the SLM/AY to an External Modem

Table 2. DB-25 to DB-9 Null Modem Cable

Modem Signal Name	Modem DB-25 Male		SLM DB-9 Male	SLM Signal Name
RxD	Pin 3		Pin 3	TxD
TxD	Pin 2		Pin 2	RxD
DCD	Pin 8		Pin 4	DTR
DTR & RTS	Pin 20 & Pin 4		Pin 6	DSR
Signal Ground	Pin 7		Pin 5	Signal Ground

APPENDIX F. TROUBLESHOOTING

Models : ALL

Indicator Normal States for LonTalk Adapter Portion

PWR Indicates power is applied to the SLM device.
SERVICE Indicates reset cycle and LonTalk adapter configuration.

Indicator Fault States

Fault	Possible Cause/Corrective Action
PWR is not illuminated	Proper power is not attached to SLM. Check the power input. If it is correct, SLM must be returned for evaluation/repair.
SERVICE does not illuminate at power-up or reset or it stays on for more than 6 to 8 seconds	The SLM unit is defective. The unit must be returned for evaluation/repair.
SERVICE is blinking	The LonTalk adapter is in the unconfigured state. Commission the LonTalk adapter with a network management tool

Model : SLM/IS (ISDN)

Indicator Normal States for Modem Portion

LNK Indicates cable is connected to an ISDN termination device.
B Indicates a call has been established with another ISDN modem.
CD Indicates a call has been established with another ISDN modem and the B channel protocol negotiation has been completed.

Indicator Fault States

Fault	Possible Cause/Corrective Action
LNK is not illuminated	Check ISDN cable and power to SLM and ISDN termination device
B is not illuminated, but call is placed	The wrong number was dialed, or SLM auto-answer mode is disabled. Enable auto-answer using SLM/Config.
CD is not illuminated, but call is placed and B is on.	B channel protocol selection is wrong. Use SLM/Config to make SLM B channel protocol match that used by the ISDN modem connected to the PC.

Models : SLM/IM (Analog) and SLM/CL (Cellular)

Indicator Normal States for Modem Portion

RI Indicates incoming call is detected but not yet answered.

CD Indicates carrier is detected and training sequence is complete.

Indicator Fault States

Fault	**Possible Cause/Corrective Action**
RI does not illuminated when a call is placed to the SLM	Check telephone cable connection and telephone number being dialed. Replace the SLM with a standard telephone to check the line.
RI blinks when call is placed, but CD never illuminates.	Auto-answer mode is disabled. Use SLM/Config to enable auto-answer.

APPENDIX G. ORDERING CODE

The *ordering code* of the SLM SiteLync module indicates the installed options. This ordering code is of the form: SLM/**XX - T I P - M C** , where

XX = Phone Line Usage
T = LonWorks Network Transceiver
I = LonWorks Interface
P = Power Input
M = Modem
C = Cell Cable

(XX) Model Type

The following model types are available, indicating the applicable phone channel:

IM = Analog Phone Lines
IS = ISDN Phone Lines
CL = Cellular Link
AY = Direct Connect (for use as a local network interface)

(T) LonWorks Network Transceiver

The following LonWorks network transceiver options are available:

A = FTT-10A B = TPT/XF-78 C = TPT/XF-1250

(I) LonWorks Interface

The following LonWorks Interface options are available:

3 = NSI Mode (for LNS applications)
4 = MIP Mode (for non-LNS applications)

(P) Power Supply

The following Power Supply options are available:

1 = 10 – 35 V AC/DC 2 = 100 – 240 VAC

(M) Modem

The following Modem options are available:

F = Analog Dial-Up for US and Canada
G = Analog Leased Line for US and Canada
H = Analog Dial-Up for European Community (CTR21)
K = ISDN for European Community
L = AMPS for US and Canada

(C) Cell Cable

The following Cell Cable options are available:

4 = Nokia 5 = Motorola MicroTac Elite 6 = Motorola StarTac
X = None

APPENDIX H. SPECIFICATIONS

Power:	10 to 35VAC/DC, or 100 to 240VAC
Mounting:	DIN Rail, EN50022
Temperature:	0-60 °C
Humidity:	10-95% non-condensing
Safety:	UL1950, CSA C22.2 , EC EN60950
EMI:	Complies with: FCC Part 15, EN55022
EMC:	Complies with EN55024
European:	Carries the CE Mark
Transceivers Supported:	FTT10A, TPT78, TPT1250
Configuration:	SLTA Link Manager, SLM/Config Utility
Dimensions:	3.5” (w) x 3.0” (h) x 4.2” (d) 90mm (w) x 75mm (h) x 107mm (d)
Telecom:	
EU Analog	V.34, 33600 bps, CTR21 Approved, Dial-up Only
EU ISDN	64 Kbps, D Channel : EuroISDN, VN-4, NTT, 1TR6 B Channel : X.75, V.110, V.120, HDLC Transparent S/T Interface
US Analog	V.34, 33600 bps, FCC Part 68 Approved, Dial-up or 2-wire Leased-line
Cellular	AMPS, 4800 bps maximum